



United States Department of the Interior

United States Geological Survey

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Memorandum

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To: Angie Evenden, Northern Colorado Plateau Network

From: Mike Bogan and Shauna Haymond, USGS

Subject: Summary of mammal inventories for the Northern Colorado Plateau Network

Personnel from the U.S. Geological Survey (USGS) conducted mammal inventories from late May to late September at nine national parks and monuments in the Northern Colorado Plateau Network (NCPN): Black Canyon of the Gunnison, Capitol Reef, Cedar Breaks, Curecanti, Fossil Butte, Golden Spike, Hovenweep, Pipe Spring, and Timpanogos Cave. We accumulated 11,773 trap-nights (number of traps times number of nights) and 108 mist net-nights (number of mist nets times number of nights) toward fulfillment of our objectives (Table 1).

The original proposal provided good-faith estimates of effort (person-days: number of people times number of days worked) at each park. We estimated 476 person-days of effort on the nine parks in 2001 and to date have expended 398 person-days. For five of the parks (CARE, FOBU, GOSP, HOVE, TICA) we equaled or exceeded 91% of the estimated effort. In the case of PISP, we clearly overestimated the amount of time required for this small park. For three parks (BLCA, CEBR, CURE), the difference between estimated and actual effort probably relates to some slight overestimation in amount of time required and underestimating logistical aspects of working in these parks.

We captured 2,008 mammals of 52 species, including 17 species of bats, 30 species of rodents, one species of lagomorph, three species of insectivores, and one species of carnivore (Table 2). We documented occurrence of additional species of mammals on parks and are still in the process of summarizing that information. Information on species represented by specimens in museums is not included here. It was our impression, bolstered by considerable experience in trapping mammals on the plateau, that population numbers of small mammals were "low" in 2001. This presumably relates to recent climatic factors (e.g., low precipitation) on the plateau and underscores the importance of multi-year studies of small mammals. It is still our hope to make a visit to each park this winter to continue collecting and assessing information in park files. A report on FY01 work will be provided to the network office by 15 January 2002.

Black Canyon of the Gunnison National Park

Efforts at BLCA resulted in the capture of 322 mammals of 19 species. Five species of bats are U.S. Fish and Wildlife Service (USFWS) species of concern: Townsend's big-eared bat (*Corynorhinus townsendii*), spotted bat (*Euderma maculatum*), long-eared myotis (*Myotis evotis*), long-legged myotis (*M. volans*), and Yuma myotis (*M. yumanensis*). We also observed additional species including mountain cottontail (*Sylvilagus nuttallii*), mule deer (*Odocoileus hemionus*), and coyote (*Canis latrans*).

Capitol Reef National Park

Three hundred thirty-four individuals of 26 species were captured at CARE. An additional 11 species were observed. Nine species of bats are USFWS species of concern: Townsend's big-eared bat, spotted bat, Allen's big-eared bat (*Idionycteris phyllotis*), western small-footed myotis (*M. ciliolabrum*), long-eared myotis, fringed myotis (*M. thysanodes*), long-legged myotis, Yuma myotis, and big free-tailed bat (*Nyctinomops macrotis*). The Brazilian free-tailed bat (*Tadarida brasiliensis*) is a state species of concern. Because some mammal work had previously been done at CARE, efforts in 2001 concentrated on areas that had not been sampled.

Cedar Breaks National Monument

Thirteen species and 245 animals were captured at CEBR. One bat species, long-legged myotis, is a FWS species of concern. Individuals or signs of nine additional species were also observed: yellow-bellied marmot (*Marmota flaviventris*), golden-mantled ground squirrel (*Spermophilus lateralis*), red squirrel (*Tamiasciurus hudsonicus*), porcupine (*Erethizon dorsatum*), bobcat (*Lynx rufus*), mountain lion (*Felis concolor*), long-tailed weasel (*Mustela frenata*), elk (*Cervus elaphus*), and mule deer.

Curecanti National Recreation Area

We captured 333 animals comprising 17 species at CURE, and observed an additional seven species. One species that we captured, the long-legged myotis, is a FWS species of concern. Seven additional species were documented at CURE: mountain cottontail, yellow-bellied marmot, Gunnison's prairie dog (*Cynomys gunnisoni*), red fox (*vulpes vulpes*), bobcat, mule deer, and bighorn sheep (*Ovis canadensis*).

Fossil Butte National Monument

We captured 197 animals of 14 species at FOBU and documented the presence of seven other species. One species captured (long-legged myotis) is a FWS species of concern and one (long-eared myotis) is a state species of concern. Additional species observed at FOBU include: American beaver (*Castor canadensis*), porcupine, mountain cottontail, mule deer, pronghorn (*Antilocapra americana*), moose (*Alces alces*) and coyote.

Golden Spike National Historic Site

Ninety-one animals of six species were captured at GOSP. Additionally, nine other mammal species were observed or documented: porcupine, big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis lucifugus*), western pipistrelle (*Pipistrellus hesperus*), yellow-bellied marmot, mountain cottontail, mule deer American badger (*Taxidea taxus*), and coyote. While efforts during 2001 concentrated on terrestrial mammals, we also mistnetted for bats one night and conducted acoustic surveys on three nights. Approximately one-third of the area had been burned shortly before our visit.

Hovenweep National Monument

Seventeen species and 271 individuals were captured at HOVE during 2001. Three FWS species of concern were captured: western small-footed myotis, long-eared myotis, and fringed myotis. Six other species were also documented: desert cottontail, black-tailed jackrabbit (*Lepus californicus*), rock squirrel (*Spermophilus variegatus*), coyote, bobcat, and mountain lion.

Pipe Spring National Monument

Very little mammal work had previously been done at PISP. We captured 173 animals of 17 species, and observed two additional species. Three FWS species of concern (Allen's big-eared bat, long-eared myotis, and fringed myotis) and three state species of concern (western small-footed myotis, long-legged myotis, and Yuma myotis) were captured over the pools in front of the castle.

Timpanogos Cave National Monument

Forty-two animals of five species were captured at TICA. Eight additional species were observed or documented: big free-tailed bat (*Nyctinomops macrotis*), big brown bat, golden-mantled ground squirrel, rock squirrel, mountain lion, ringtail (*Bassariscus astutus*), mule deer, and mountain goat (*Oreamnos americanus*). We did not attempt to net bats, but we did spend 3 nights conducting acoustic surveys at the park.

Table 1. Summary of 2001 mammal inventory effort at Black Canyon of the Gunnison (BLCA), Capitol Reef (CARE), Cedar Breaks (CEBR), Curecanti (CURE) Fossil Butte (FOBU), Golden Spike (GOSP), Hovenweep (HOVE), Pipe Springs (PISP), and Timpanogos Cave (TICA) national parks and monuments. Actual number of species documented includes captures and (some) observations. Existing museum records are not included in this table.

Park	<u>Person-days</u>			Trap nights	Mist net nights	<u># Species documented</u>		
	Estimated	Actual	Percent of Est.			Expected	Actual (captured)	Percent of Expected
BLCA	56	43	76	1240	12	47	22 (19)	46
CARE	84	77	91	2297	58	59	31 (26)	52
CEBR	84	54	64	1885	7	49	22 (13)	44
CURE	56	40	71	1338	12	47	24 (17)	51
FOBU	56	52	92	1448	9	47	21 (14)	44
GOSP	28	36	128	863	1	51	15 (6)	29
HOVE	56	56	100	2016	5	48	23 (17)	47
PISP	28	10	35	360	4	46	18 (17)	39
TICA	28	30	107	326	0	52	13 (5)	25

Table 2. Capture summary for 2001 for mammals at Black Canyon (BLCA), Capitol Reef (CARE), Cedar Breaks (CEBR), Curecanti (CURE), Fossil Butte (FOBU), Golden Spike (GOSP), Hovenweep (HOVE), Pipe Springs (PISP), and Timpanogos Cave (TICA) national parks and monuments.

		Park									
Species		BLCA	CARE	CEBR	CURE	FOBU	GOSP	HOVE	PISP	TICA	Total
Chiroptera	Pallid bat	1	23					4	35		63
	Townsend's big-eared bat	1	12								13
	Big brown bat	1	9	1					1		11
	Spotted bat	1	3								4
	Allen's big-eared bat		3						5		8
	Hoary bat	1									1
	Silver-haired bat	1	39		4						44
	California myotis		14					7	6		27
	Western small-footed myotis		2					2	3		7
	Long-eared myotis	8	3			9		1			21
	Little brown bat			2	5	4					9
	Fringed myotis		3					18	8		29
	Long-legged myotis	12	12	1	4	3			2		33
	Yuma myotis	1	7						2		10
	Western pipistrelle		30					7	20		57
	Big free-tailed bat		12								12
	Brazilian free-tailed bat		7								7
Rodentia	Long-tailed pocket mouse								8		8

Table 2 *continued*. Capture summary for 2001 for mammals at Black Canyon (BLCA), Capitol Reef (CARE), Cedar Breaks (CEBR), Curecanti (CURE), Fossil Butte (FOBU), Golden Spike (GOSP), Hovenweep (HOVE), Pipe Springs (PISP), and Timpanogos Cave (TICA) national parks and monuments.

Species	Park								Total
	BLCA	CARE	CEBR	CURE	FOBU	GOSP	HOVE	PISP	
Ord's kangaroo rat						3			3
Long-tailed vole			9	14	3				26
Montane vole	1		14	19	5				39
Meadow vole				15	1	1			17
White-throated woodrat							2		2
Bushy-tailed woodrat	25		2	10	2	1			44
Desert woodrat		3						12	15
Mexican woodrat							28		28
Northern grasshopper mouse		4			1				5
Silky pocket mouse							2		2
Great Basin pocket mouse		37			3	17			57
Peromyscus species	3	6							9
Brush mouse	36	7		1			50	17	111
Canyon mouse	3	13	16				13	10	59
Deer mouse	183	22	111	200	110	63	14	22	755
Piñon mouse	16	58					110	14	198
Western harvest mouse						6	6	6	19
Golden-mantled ground squirrel	2			2					4

Table 2 *continued*. Capture summary for 2001 for mammals at Black Canyon (BLCA), Capitol Reef (CARE), Cedar Breaks (CEBR), Curecanti (CURE), Fossil Butte (FOBU), Golden Spike (GOSP), Hovenweep (HOVE), Pipe Springs (PISP), and Timpanogos Cave (TICA) national parks and monuments.

		Park									Total
Species		BLCA	CARE	CEBR	CURE	FOBU	GOSP	HOVE	PISP	TICA	
	Rock squirrel				2						2
	Cliff chipmunk		1								1
	Red squirrel				2						2
	Least chipmunk	24		18	23	47		4			116
	Colorado chipmunk	2			5			2			9
	Hopi chipmunk		3					1			4
	Uinta chipmunk			62						3	65
	Northern Pocket Gopher			5							5
	Botta's Pocket Gopher								2		2
	Pocket Gopher (to be identified)					1					1
	Western jumping mouse				22	7					29
Lagomorpha	Desert cottontail		1								1
Insectivora	Sorex sp. (to be identified)			3							3
	Masked shrew				3						3
	Common water shrew				2						2
Carnivora	Ermine			1		1					2
	Total	322	334	245	333	197	91	271	173	42	2008